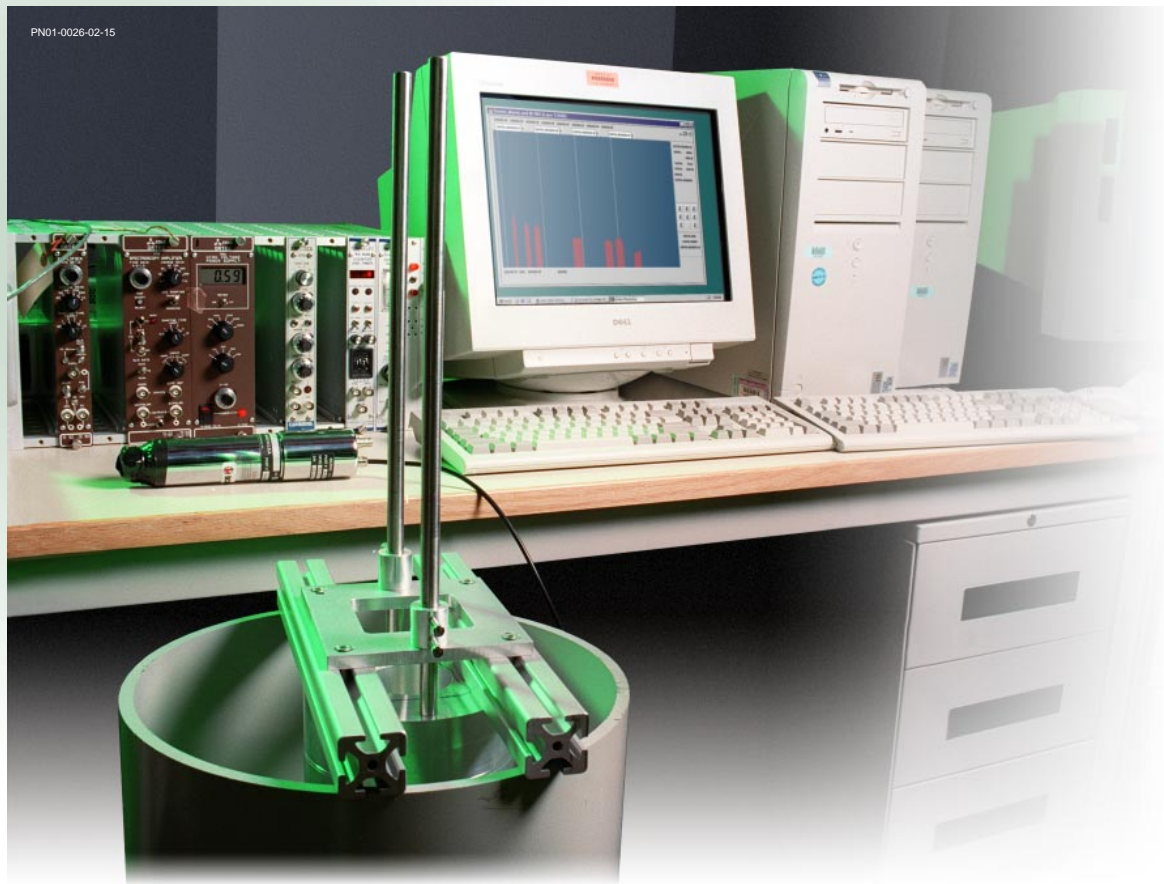


A Glimpse Underwater: Scanning for Hotspots

The Rack Scanner does a nondestructive analysis of racks in wet storage to identify the presence of radiation.



Rack Scanner Fissile Material Detection System

After fuel rods from the Wet and Dry Fuel Storage Facility were relocated, there was a possibility that bits of unstable material, known as fissile material, might be left in the racks that held the fuel rods. Spent Nuclear Fuel Program engineers needed a water-tight detection system

that would fit in a small space and detect small quantities of a particular radioactive isotope. The **Rack Scanner Fissile Material Detection System** fits in a space as small as six inches in diameter and can detect as small as half a gram of fissile material. The

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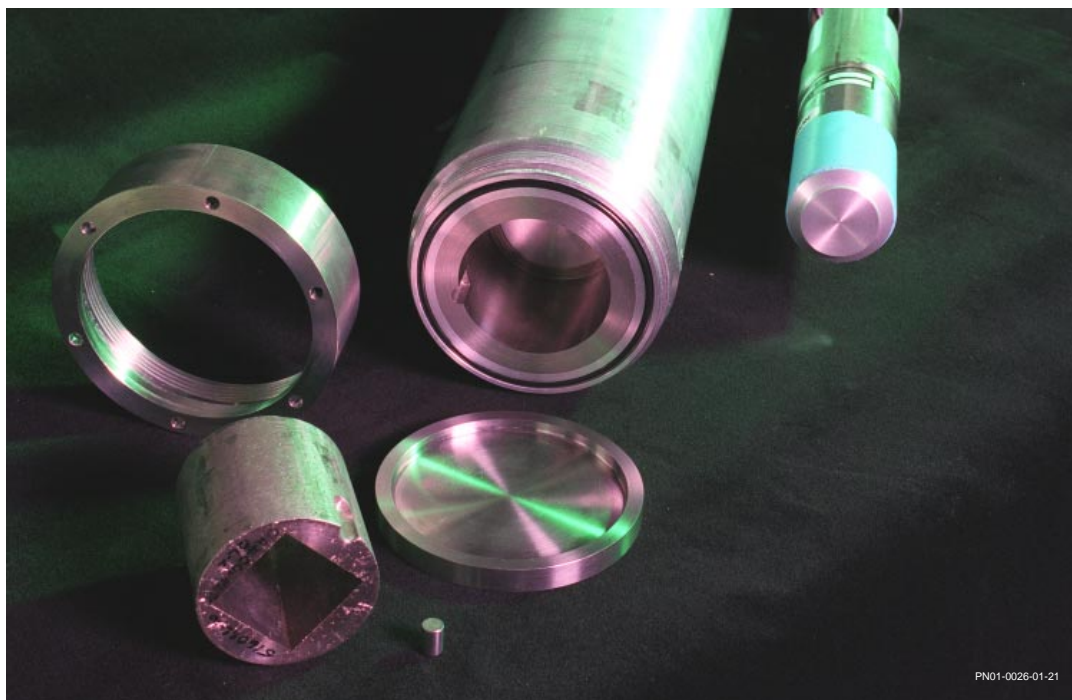
The Rack Scanner Fissile Material Detection System fits in a space as small as six inches in diameter and can detect fissile material as small as half a gram.

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detector identifies Cesium-137, which is an indicator of Uranium-235. The system is tethered to a crane and lowered into a water storage basin where it performs non-destructive analysis of the

racks. A computer receives the information transmitted from the gamma assay system and displays a readout of the type and location of material present. The scanner's remote system

allows workers to conduct the entire examination from a safe location. In March 2001, workers at the Wet and Dry Storage Facility used the **Rack Scanner Fissile Material Detection System** to identify the concentration, quantity and exact coordinates of two pieces of suspect material. The information collected by this tool is vital to cleaning up and disposing of the storage racks.



A disassembled rack scanner reveals its various parts: a casing, detector, collimator, pin, and end cap.

Benefits:

- Detects, identifies and locates specific radioactive isotopes
- Saves time and money on lab results and analysis
- Reduces worker exposure to radiation
- Increases worker safety through remotely-controlled operation

A computer receives the information transmitted from the gamma assay system and displays a readout of the type and location of material present.